

Uncooled Thermal Imaging Arrays, Systems, and Applications (SPIE Tutorial Texts in Optical Engineering Vol. TT51)

Paul W. Kruse

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The development of uncooled infrared focal plane arrays began with the military's need to see the battlefield at night without any form of illumination. While the early arrays involved use of cryogenic systems, a new class of detection mechanisms that didn't require crygenic operation was developed in the United States in the 1980s. The author has been involved in development of this technology since then. This book is an introduction for both professionals and students. It covers uncooled thermal detection methods, fundamental performance limits, theoretical performance of thermoelectric, resistive, bolometric, and pyroelectric detection mechanisms, state-of-the-art in uncooled arrays, imaging systems, applications, and trends.

Contents

- List of Figures
- List of Tables
- Preface
- An Overview of Uncooled Thermal Imaging Detection Mechanisms and Their Figures of Merit
- Fundamental Limits
- Thermoelectric Arrays
- Resistive Bolometers
- Pyroelectric Arrays
- State of the Art and Technical Trends
- Choosing the Proper Technical Approach for a Given Application



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